

# FISH & RICHARDSON P.C.

## OFFICIAL

225 Franklin Street  
Boston, Massachusetts  
02110-2804

Telephone  
617 542-5070

Facsimile  
617 542-8906

Web Site  
www.fr.com

Date March 28, 2000

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To Examiner H. Thi Le  
U.S. Patent and Trademark Office  
Washington, D.C. 20231

Facsimile number 01997-27200001 / 703-305-5436

From Y. Rocky Tsao, Ph.D., J.D.  
Reg. No. 34,053

Re Bawendi et al. - USSN 08/969,302  
Our Ref.: 01997-272001

Number of pages  
including this page 8

### Message

**Please hand deliver to Examiner Le.**

## URGENT

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N Beverly

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## FISH &amp; RICHARDSON P.C.

OFFICIAL

225 Franklin Street  
Boston, Massachusetts  
02110-2804Telephone  
617 542-5070Facsimile  
617 542-8906Web Site  
www.fr.comFrederick P. Fish  
1855-1930W.K. Richardson  
1859-1951

FAX RECEIVED

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GROUP 1700

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By Facsimile (703)-305-5436

Examiner H. Thi Le  
U.S. Patent and Trademark Office  
Washington, D.C. 20231

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Re: Bawendi et al. - USSN 08/969,302  
Our Ref.: 01997-272001

Dear Examiner Le:

Thank you for granting a telephone interview, scheduled for 2:00 p.m. today, to discuss the Office Action dated January 20, 2000 ("Final Office Action").

For your convenience, we submit the following remarks along with Appendix A and Exhibits A-C prior to the scheduled interview.

The Pending RejectionIn Final Office Action, you rejected claims 1-14 and 24-42 under 35 U.S.C. § 102(b) as being anticipated by "Nucleation and Growth of CdSe on ZnS Quantum Crystallite Seeds, and Vice Versa, in Inverse Micelle Media" by Kortan et al. ("Kortan et al.").<sup>1,2</sup>

In making this rejection, you stated:

Monodisperse particle population of the core is the only argument made by applicant. Applicant asserted that the CdSe seed as prepared by Kortan's method is not a monodisperse particle. However, applicant did not explain why it is not. CdSe as described in the Kortan reference as a single crystallite (or in other words, mono-crystallite), and thus it inherently comprises a monodisperse particle population (Final Office Action at page 2, lines 4-8).

FWHM = Function of bander

<sup>1</sup> Applicants note that claims 1 and 2 have been canceled.<sup>2</sup> A brief summary of the claims is provided in Appendix A.

FISH & RICHARDSON P.C.

By Facsimile (703)-308-2415

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We do not understand your comments. In particular, we fail to see how the crystalline nature of a material is related to the **size** of the crystal or the **distribution of sizes** of a plurality of crystalline materials. It does not follow that single crystal core materials, i.e., a plurality of mono-crystals, inherently have a **monodisperse particle population**. The term monodisperse is defined in the Specification at page 5, lines 26-28, as "a colloidal system in which the suspended particles have substantially identical size and shape." Additionally the term **monodisperse particle population** is further defined as a plurality of particles which deviate less than 10%, and preferably less than 5% in rms diameter. Moreover, a **monodisperse particle population** also emits light in a range no greater than 60 nm, preferably 40 nm, and most preferably 30 nm at full width half max (FWHM). See, for example, the specification at page 5, line 25 through page 6, line 26.

In view the foregoing, we contend that Koran et al. does not disclose or suggest core materials of a **monodisperse particle population**. Furthermore, Kortan et al. does not suggest a method of producing core materials of a **monodisperse particle population**. Rather, Kortan et al. use "seed" crystallite particles produced from the methodology described in "Surface Derivatization and Isolation of Semiconductor Cluster Molecules" by Steigerwald et al. See, for example, Kortan et al. at page 1328 and reference 4. In fact, "seed" crystallite particles produced by Steigerwald et al. deviate by **25% rms in diameter**. See Steigerwald et al. at page 3048, column 1 (copy attached as Exhibit A). Therefore, the core material in Kortan et al. having a rms diameter of greater than 10% is not a **monodisperse particle population**.

Moreover, Kortan et al. spectroscopically characterize the core materials: "[t]he initial CdSe seed shows extremely weak **broad** visible emission similar to that of Figure 2A" (at page 1328, 2<sup>nd</sup> column; emphasis added; copy attached as Exhibit B). Indeed, the FWHM of the emission produced by the core materials of Kortan et al. is approximately 200 nm. As shown in Figure 2 of the present specification, CdSe core materials of a **monodisperse particle population** exhibit emission in a range no greater than about 60 nm FWHM (copy attached as Exhibit C). Thus, the core materials of Kortan et al. having emission exhibiting a FWHM of greater than about 60 nm are also not a **monodisperse particle population**.

For at least the reasons stated above, we believe that claims 3-14 and 24-42 are patentable over Kortan et al. All of the claims are now in condition for allowance, which action is requested.

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If you feel that prosecution of this application might be advanced by consulting with your supervisor, we invite you, at your discretion, to provide a copy of this letter to that person before the interview.

Very truly yours,

*Y. Rocky Tsao*

Y. Rocky Tsao, Ph.D., J.D.

Reg. No. 34,053

/jzo

Enclosures  
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*Page 34053*